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ABSTRACT

Designing campus environments integrates the efforts of architects, planners, landscape personnel, and administrators. At a symposium on preserving a quality environment, the concepts of planning, building, managing, preserving and questions such as: How can we plan buildings that can be readily adapted to future needs? What is the value of campus planning? What kinds of planning are most likely to be beneficial? and many more, were addressed in formal and informal presentations. Papers included: "Preserving a Quality Environment for Learning" (John Corbally) which outlines the importance of curricular discipline. "Building the University District" (Paul Reinert) examines the relationship between the university and community. "Providing an Ambience for Excellence" (Scott Girard) suggests that environmental spaces are needed to create a supportive climate. "Respecting and Managing a Campus Master Plan" (Thomas Kepple) profiles the role of physical appearance in the college selection process. "Comprehensive Planning for Unpredictable Changes" (Manfred Hegger) analyzes the complexity of improving campuses years after their creation. "Campus Ecology: the College Environment, Learning and Development" (James Banning) examines the impact on students of the environment and efforts to include them in its design. "Growth and Development of the Campus" (Paul Turner) argues for master campus-growth plans. "Milieu Management in College Residence Design and Operation" (Charles Schroeder) contends that students deserve involvement, influence, and investment in building processes. "Laboratory Flexibility" (Karl Obrink) explores the role of flexibility in effective laboratory building design. "Economics of Amenities" (Robert McNulty) probes the political, social, and economic influences on campus aesthetics. "Participatory Campus Planning" (Jerry Finrow) supports community participation in planning and inspects the impact of the physical environment on student participation. (TEJ)

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The Ohio State University
Office of Business and Administration

Preserving a Quality Environment for Learning: Second International Symposium

Proceedings

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Preserving a Quality Environment for Learning: Second International Symposium

The Ohio State University
Office of Business and
Administration

Preface

Preserving a Quality Environment for Learning: The Second International Symposium is a report on proceedings of the second symposium on this topic. Organized by The Ohio State University Office of Business and Administration, the Symposium was conducted in Columbus, Ohio on October 10-12, 1988. The Ohio State University Office of Business and Administration wishes to thank the following firms for making the Symposium possible:

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Robert F. Rodgers
Associate Professor, College of Education
The Ohio State University

Winthrop M. Wassenar, P.E.
Director, Physical Plant
Williams College

Presenters and Moderators

Our sincere appreciation to the distinguished experts whose thoughtful and thought-provoking presentations made the symposium a success. We regret that the audio-visual presentations that accompanied many of the talks and the spirited exchanges that followed all of them cannot be included in these conference proceedings.

In addition to the presenters, whose names are listed in the table of contents and with their edited presentations, we wish to thank the moderators whose efficiency and humor kept the symposium moving at an exciting pace. Symposium moderators, along with the sessions each moderated were:

Diether Haenicke
President, Western Michigan University
(Respecting and Managing a Campus Master Plan)

Thomas W. Kehler
Director, Division of Campus Park and Planning
Michigan State University
(Comprehensive Planning for Unpredictable Changes: The University of Frankfurt)

Robert Rodgers
Associate Professor, College of Education
The Ohio State University
(Milieu Management in College Residence Design and Operation)

Winthrop W. Wassenar, P.E.
Director, Physical Plant
Williams College
(Laboratory Flexibility: The Biomedical Center at Uppsala)

James K. Huhta
Director, Center for Historic Preservation
Middle Tennessee State University
(Economics of Amenities)

Paul E. Young, Jr.
Professor of Architecture
The Ohio State University
(Participatory Campus Planning: The Built Results of Alexander's Oregon Experiment)

Richard Haupt
Consultant in History and Preservation
Bethesda, Maryland
(Lessons from Losing)

Introduction

Planning, building, managing, preserving—these vigorous words came up again and again in the titles and content of the presentations made at The Second International Symposium on Preserving a Quality Environment for Learning, and in the questions posed by participants.

How can we plan buildings that can be readily adapted to future needs? How can we cost-effectively construct buildings that will last? How can we manage campus facilities in a way that both honors and preserves the past while simultaneously planning for future building needs? What is the value of campus planning? What kinds of planning are most likely to be beneficial? Should faculty, staff, students and other "users" of university buildings share in decisions related to campus planning?

Formal presentations addressing these and other questions, along with an informal session, "Lessons From Losing," in which participants shared what *didn't* work and why, made the two-and-a-half day symposium a lively and informative event.

For all their diversity, the presentations made by our distinguished guests added up to a common and universal concern: How to ensure—through planning, building, managing, and preserving—the maintenance of the spirit, the personality, that makes each campus unique. The importance of the physical environment to a campus' personality is readily illustrated: Alumni who have long since forgotten the names of professors, fondly remember residence halls and academic buildings. Paul V. Turner, a presenter at the Symposium, put it eloquently in his outstanding book, *Campus: An American Planning Tradition*. "Above all," Turner writes, "the campus reveals the power that a physical environment can possess as the embodiment of an institution's character."

That power of the physical environment does not simply happen. It evolves, often over centuries, though the efforts of planners, architects, landscape architects, and administrators who preserve the old, create the new and, in the process, become guardians and curators of their universities' distinct characters. Our thanks to all those who attended the Symposium and helped us explore ways to preserve the characters of quality campus environments in the United States and Europe.

Richard D. Jackson
John R. Kleberg
The Ohio State University
Office of Business
and Administration.

Preserving a Quality Environment for Learning

John E. Corbally
President
John D. and Catherine T.
MacArthur Foundation

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"Some of the elements of the environment that affect our students and faculty are within our control, and some are not. But all are important within our institutions and, as we consider the environment, we need to be conscious of as many of these elements as possible."

This symposium is concerned with learning and with the ways in which the environment where teaching and learning occurs influences the quality of that learning. I am delighted to have this chance to speak to that concern because, as a volunteer leader in the effort to reform the public schools of my current home city of Chicago, it is a major concern of mine as well.

In this volunteer role, I have visited schools, homes, streets and alleys, social agencies and recreational facilities. I have been struck by the fact that school is only a small part of the environment in which we ask students to learn and teachers to teach. As I talked with hundreds of people about the Chicago public schools, it became painfully obvious that the attitudes of people toward teachers and learners are key elements of the environment in which education takes place. Consequently, my definition of the "environment for learning" has been expanding. It is no longer limited to the physical setting of the classroom, the buildings or the landscaping of the campus.

When I was in elementary school in Seattle a surprisingly great number of years ago, a teacher of mine always responded to our questions about the meaning of things by saying, "Look it up!" Throughout life I have found this simple directive to be extremely useful, for we often use words so regularly that we forget what they really mean.

As I prepared for our discussion today, I turned once again to my two-volume *World Book* dictionary and was gratified to find the following definition of environment: "All the surrounding things, conditions and influences affecting the growth or development of living things." My attention was attracted to the first word of that definition—"all"—for it was that concept of environment that was beginning to shape my thinking about the Chicago schools. That same definition needs to shape our thinking about institutions of higher education.

Some of the elements of the environment that affect our students and faculty are within our control, and some are not. But all are important within our institutions and, as we consider the environment, we need to be conscious of as many of these elements as possible. I will mention only a few that seem important to me and that are only minimally within our control.

I have always felt that discipline is an essential factor in supporting learning. It is said, for example, that the ability of a freshman to survive and succeed in a demanding college curriculum is dependent on the ability to say no to dozens of daily opportunities to do something other than study or attend class. Discipline not only implies the ability to say no. It also implies the organizational ability and orderliness essential to the learning process. Although we may marvel at that person with the cluttered desk who can

dive in and miraculously find the correct paper, that individual is not the model for a good learning environment.

While discipline, then, is an important element in support of learning, current societal trends do not support this trait. Our tolerance for graffiti, for carelessness in speaking and writing, for coarseness in speech and behavior and our feeling that the establishment of too many demands by, for example, the church, is uncalled for—all these factors are contrary to rather than supportive of discipline.

On the campus there is increasing concern about the discipline of the curriculum. Should a university or college simply supply a buffet table of courses from which each student selects, or should the content of the intellectual meals be specified in some detail by the faculty? Those who study the history of higher education will testify that we swing from one end of the continuum to the other in this area of curricular choice, and that the desirable position is clearly somewhere in the center. I would argue that too much freedom at the buffet table has a negative influence on learning because it lacks the necessary underlying discipline.

So I would hope that the campus environment—both the physical environment and the attitudinal environment—would support discipline. For example, the enforcement of rules and regulations related to the use of kiosks for student messages. A certain degree of orderliness—not sterility, but orderliness—is important to the learning environment, and our plans and actions should support that orderliness.

Another aspect of the environment that supports learning is time to oneself. We are becoming an increasingly crowded society and it is difficult to find a space to engage in quiet contemplation. Higher learning requires that the learner be capable of internalizing complex knowledge. This is not a group activity.

As our campuses become more crowded and as we find land too valuable "to waste" on open spaces, we diminish the opportunity for real contemplative learning to take place. We are also finding, unfortunately, that on many campuses there is safety in numbers and that in our efforts to design safe environments we do away with those nooks and crannies so essential to contemplation.

I do not know how we deal with the conflicting needs of safety and learning, but I am certain that we need to find ways for individuals to get away from the crowds, to find a serene place to think about, absorb and integrate the lessons of the classroom, the library and the laboratory.

Another element of a learning environment is the interaction between individual teachers and individual students. Here, again, the economics of space as well as some architectural inventions on behalf of flexibility have decreased the opportunities for one-on-one interactions.

"As our campuses become more crowded and as we find land too valuable "to waste" on open spaces, we diminish the opportunity for real contemplative learning to take place."

The so-called "open office" architecture—cubicles filled with "white noise" and separated by movable walls that do not reach the ceiling—does not support a learning environment.

Faculty offices are generally the afterthoughts of campus design. We stack them up or squeeze them in after we have developed high technology classrooms and lecture halls, laboratories, libraries, computer centers, and all the other facilities meant to support faculty-student interaction. When I became a faculty member at the University of Illinois after serving as its president, I regretted that my office did not offer even a few of the amenities of the president's suite. I commend the donor and the Notre Dame administration that made a well-designed faculty office building a high priority. Funding high quality faculty offices is a rare act and one that, in my view, needs to be repeated on most campuses.

Finally, another major influence on the learning environment is that of attitude. Most of us have marveled at what we believe are the essential physical facilities that support teaching and learning. I recently visited a classroom at Beijing University in which advanced English was being taught with great success.

From my viewpoint, it was a horrible environment. The building was old and smelled mildewed. The classroom was small and the teaching equipment consisted of a blackboard and chalk. The teacher, a young Australian woman, was working with the class on the difference between various idioms of time used by Americans—i.e., "pretty soon", "later", "in a second."

The students were role playing setting up a meeting, and I thought to myself that American teachers and students would find this an impossible environment for learning. Yet it seemed to be working here. Our expectations are high and we often confuse necessity with what we would like to have. We permit petty concerns to cloud our attitudes so that learning becomes impossible—not because of the environment, but because of our attitude toward the environment.

That problem is a difficult one for planners because they want to speak to our highest aspirations. They often equate quality with materials, style and technology, or modernity with quality in the learning environment. The equation is not always true. I would hope that we would concentrate upon the critical elements rather than upon superficial elements. Some of those critical elements are missing on the campus in China. I do not want to present the bare classroom or the one-room log cabin as the ideal environment.

Many of our learning environment needs are human needs rather than technological needs, but we sometimes have a tendency to concentrate on the latter. I hope what I have done today is to ask you to expand your view

of the learning environment from a campus view to a societal view; to consider discipline, solitude, student-faculty one-to-one relationships, and attitude as important elements of the learning environment; and to absorb and work around but remain faithful to, central planning elements that do not quite work out.

As a university president it was my privilege to work with some pioneering campus planners. When campus planning is led by persons of vision and skill, the activity leads to planning by all elements of a campus. It forces admissions officers to think of demographics off and on campus; it forces academic leaders to think of curricular and methodological questions that are often put aside in the day-to-day work of an academic dean or chairman; it forces boards of trustees to think of major policy issues concerning the future of institutions—issues that must be addressed if one is to consider the more mundane issues of, say, parking and traffic control.

It becomes, then, an institutional experience in which important questions are asked and group answers are developed. It assists in giving purpose to an institution and in forcing evaluation of the degree to which purposes are being met. It is research of the highest order with hypotheses, alternatives and tests. And when it is led by true planners, it is never-ending for today's plan becomes the benchmark for tomorrow's evaluation and new plan.

"When campus planning is led by persons of vision and skill, the activity leads to planning by all elements of a campus."

Building the University District

Paul C. Reinert, S.J.
Chancellor
Saint Louis University

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"Conventional wisdom says that universities must do three things in this order of priority: teach, conduct research and provide services to the community. Community service is to be a priority only if and when the first two objectives have been achieved."

Before describing the actual process in which we have been engaged over the past 40 years—developing not just an urban campus for Saint Louis University, but trying to bring into reality a university district in Mid-Town St. Louis—I want to lay the groundwork with some definitions.

I think it is important to understand some basics about the two types of colleges and universities in the United States. A public institution is typically a state college or university, chartered by a state's legislature. State institutions are largely financed by appropriations from the state government; the money to finance them is acquired through tax levies. Today, most states have not only a state university but also a complex state system of higher education that includes several universities, specialized colleges and junior or community colleges.

Private institutions, on the other hand, although chartered by the state as degree-granting schools, place ownership and management responsibilities in a Board of Trustees in charge of academic integrity and fiscal stability. Although there are various indirect methods for directing federal and state tax dollars toward benefiting private institutions, in general they support themselves through endowment income, tuition and voluntary contributions from corporations, alumni and friends.

Another difference between public and private institutions is that most older public schools were established in rural areas and small towns, while early private institutions were on urban sites. Because of their locations, most of the older private universities discovered when it was almost too late that their campuses were being surrounded by residential or commercial growth that made expansion seem impossible. Saint Louis University, an urban institution founded in 1818 and the oldest university west of the Mississippi River, is in this category.

The typical urban character of the private institution had other implications that went beyond the problems of physical limitations and the invasion of non-academic influences. In many instances—certainly in the case of Saint Louis University—it exercised a profound influence on the mission and character of the institution.

Because the university literally grew up with the little pioneering fur-trading town on the Mississippi River, Saint Louis University has always been unusually community-minded. The university's community service orientation is so strong that I prefer to define its mission differently than is typical. Conventional wisdom says that universities must do three things in this order of priority: teach, conduct research and provide services to the community. Community service is to be a priority only if and when the first two objectives have been achieved.

Today at Saint Louis University, and I think at other

urban institutions, a more accurate definition of our mission is that of primarily a *service* institution whose major purpose is to provide services to its constituencies in two ways: by providing meaningful learning experiences to both young and old people, and by providing a variety of useful services to the community.

How does a modern urban university with a focus on service go about creating the environment—including physical structures, equipment, open spaces and atmosphere—that is most conducive to achieving its mission? Let me first approach the question negatively by stating how, in the early 1940's, the University of Chicago failed to achieve this mission.

During the three years I was at the university, which was surrounded by a solid, fairly affluent neighborhood, the well-established community began to fall apart as middle-income people moved out. I witnessed the trauma experienced by the university's Board of Trustees. In my opinion, they panicked and decided the university's salvation lay in buying up as much area property as possible. Within a short time, that venerable institution was regarded as "the enemy" by the new Southsiders who were mostly black and poor.

By the time I returned to Saint Louis University in 1944 as Dean of the College of Arts and Sciences, I had come to some theoretical conclusions that formed part of my inexperienced answer to the question: Who is responsible for the general welfare of a deteriorating community? Is it the federal government, local government, the business and industrial community? Or should responsibility be a local initiative led by concerned citizens within the community itself? At Saint Louis University, we chose the local initiative approach.

In 1944, the flight from the St. Louis inner city by businesses and residents was picking up momentum. By the time I was appointed university president in 1949, the main campus was rapidly becoming an isolated island in the midst of blocks and blocks of slums. By the 1950's, the university was under pressure to join other institutions in moving to the suburbs, both because of the decaying neighborhood and because there was little room to expand in its present location.

At this critical juncture, as our growing enrollment required that we provide more residential and teaching facilities, the university was given the opportunity by the local Land Clearance Redevelopment Authority to participate in a Title I Urban Redevelopment Project. Financed by federal and local government grants, the Project held out the possibility for the university to more than double its campus area.

As a result, the university stayed at its present site and raised more than $200 million for new buildings and for enhancements to existing structures. Gradually, the university was transformed from

"How does a modern urban university with a focus on service go about creating the environment—including physical structures, equipment, open spaces and atmosphere—that is most conducive to achieving its mission?"

an asphalt commuter institution to one with grass, landscaping and open spaces. In the meantime, the surrounding area—especially to the immediate north—became a disaster area of deserted buildings. Although we were able to maintain a safe campus environment, the popular perception of the Mid-Town area was that it was a dangerous place and one to be avoided.

In 1974 after 25 years as president, I took on a new role as chancellor of Saint Louis University. A major task was to work toward a solution to the biggest problem the university had ever faced: what to do about the deteriorating Mid-Town area that surrounded us. After discussions with representatives of other institutions, businesses and residents, we formed a corporation called NewTown/St. Louis, Inc.

This legal, not-for-profit corporation, a separate entity from the university, was dedicated to planning, promoting and monitoring the development of the best land use of a huge area of Mid-Town: 600 city blocks on 1,250 acres. The board of NewTown/St. Louis included area residents, local organizations such as the Scottish Rite Masons, and small and medium sized businesses.

A grant from the Danforth Foundation enabled us to develop a long-range plan for the area. We then subdivided our efforts and spun off to for-profit corporations to develop this vast area, with the charge that they abide by New Town/St. Louis principles and policies.

Our first project, developed in cooperation with the Pantheon Corporation, resulted in Lafayette Towne, a 220-acre residential community featuring a combination of new and rehabilitated homes and apartments. This project taught us how difficult it is to provide quality, rehabilitated housing at prices affordable to area residents.

The second project is Mid-Town Medical Center Redevelopment Corporation (MMCRC). About 60 percent complete, it envelopes our Medical Center with several hospitals. Here again, we have learned a great deal the hard way. For example, we found that there is a limit to the number of persons willing to invest in living in a racially and economically integrated area. There are some areas of St. Louis that have achieved this ideal, but the practical fact is that support for this type of development is limited.

To date, our work in the Mid-Town Medical Center area has resulted in the rehabilitation of 230 residential units, of which 31 are public housing, 72 are low income housing, 51 are voucher-assisted and 17 are non-federally assisted low-income rentals. This means that MMCRC is renting to 171 low-income families in the 230 units it manages.

Our third spin-off is called City Center Redevelopment Corporation. It is concerned with a small area that was once the "Broadway of St. Louis," a rundown theatre

district that also contained doctors' offices and other health personnel. We decided the only hope for the area was to return it to its former glory, so we designed a development project that progressed exactly backwards compared to typical urban redevelopment undertakings.

Normally, residential space and commercial facilities are built or rehabilitated before entertainment and restaurant facilities. Instead, we revived the performing arts first, then moved on to commercial buildings and, finally, housing. Among the lessons we learned was that because of the loss of the investment tax credit, urban redevelopment is grinding nearly to a halt. Because this is no longer a motivator to investors, we have lost one of the country's most effective mechanisms for community revitalization and economic development.

Completely unforeseen when we began this grassroots effort to revitalize the Mid-Town area was a by-product of great significance: unconsciously we had begun the process of creating a living laboratory for nearly every aspect of the teaching, learning and research efforts of the university as it sought to serve its many constituencies.

Of course, no two universities will find themselves in exactly the same geographic and demographic relationship to the surrounding community as Saint Louis University did. Nevertheless, our experience has convinced me that administrators of all urban universities should try to determine how their institutions can strengthen academics and improve teaching and research *precisely* by initiating more vital services that benefit the surrounding community.

Given the fact that about 70 percent of all university graduates live in metropolitan areas, there is an opportunity—if not an obligation—on the part of universities to determine whether the surrounding area can be converted into a living laboratory for students, faculty and staff. Simultaneously, universities will be providing valuable community services which would otherwise be unavailable.

Some conclusions based on the experience of Saint Louis University:

- **No university, no matter how powerful, can create a living laboratory by itself.** Instead, it must be part of a grassroots community effort in which the university acts as one among equals with area businesses and residents.
- **Universities should not proceed without as broad a community consensus as possible.** This requires first developing a climate for consensus, which requires enormous time and patience.
- **The doctrinaire "pat" solutions often so readily handed out in the classroom must be fire-tried in the cauldron of real life.**

There are, of course, major deterrents and unresolved

"Given the fact that about 70 percent of all university graduates live in metropolitan areas, there is an opportunity—if not an obligation—on the part of universities to determine whether the surrounding area can be converted into a living laboratory for students, faculty and staff."

problems in our efforts to revitalize the Mid-Town area and to provide maximum services to the community. These include:

- **The economic slowdown and the relatively high cost of borrowing money, which is the biggest single deterrent to redevelopment efforts.**
- **Increasingly, there are legal obstacles as well as other controversies that also discourage major urban redevelopment.** Illustrative of this in Missouri is the power of eminent domain—that is, the power to condemn commercial or residential property provided a carefully monitored relocation process for residents is followed before the area is condemned. This is a classic example of the conflict between protection of the rights of the general community versus the rights of individual property owners.
- **Because inner city residents in St. Louis and most other large metropolitan areas are poor and black, racial issues inevitably become intertwined with urban redevelopment efforts.**

Building a university district in an urban setting is very difficult, yet it is possibly the best method for an urban university to realistically define and articulate its unique mission in a way that will rally nearly universal community support. St. Louis University continues to be a community of learning rooted in the past but open to the world as it is today.

Providing an Ambience for Excellence

Scott L. Girard
Partner, Perdian Group

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"Small spaces are important, both indoors and out. Students prefer the smaller scale provided by nooks and crannies, although facilities planners and architects worry about security issues, lighting and other potential problems."

The word "ambience" has several definitions, one of which is to supply or equip. It also means to make advance preparations. Ambience for a total environment encompasses excellence. And when I think of ambience in the landscape environment, I turn to my roots in design and my experience with the Walt Disney Company.

I am fortunate to have spent two and a half years working with Walt Disney on some projects I did in Anaheim, California. Being able to observe firsthand the way Disney related to design and to designing spaces for people was a tremendous opportunity. Since then, I've worked on the design of many other landscape environments, which encompass everything outside of buildings. Paving, lighting, amphitheatres, landscaping, irrigation systems, sound—I've worked on all these aspects of the environment and have, of course, viewed many other exterior landscapes with an architect's eye.

Outdoor environments are very important in terms of providing the proper ambience, especially on college campuses. There are a number of ways to accomplish this. The hard edges of buildings can be softened with vines, which also add character to the space. Using greenery to bring the outdoor environment indoors is also important.

It helps provide a quieter, more natural environment for students and faculty. And because it's indoors, it's protected from the elements. Small spaces are important, both indoors and out. Students prefer the smaller scale provided by nooks and crannies, although facilities planners and architects worry about security issues, lighting and other potential problems. If they are carefully designed, these small private spaces can meet security and comfort needs.

Color is also essential to a quality outdoor environment. Flowering trees are an excellent way to achieve this. Water is another important feature. It can make a highly contrived architectural statement through the use of formal landscaped pools with tiered planters and rocks, such as those found in Japanese gardens. Incidentally, there are firms now that provide fiberglass rocks to use in these settings that outlast the real thing—and often look better. Fiberglass rocks are made by preparing a mold made from the shape of an exceptionally well-formed real rock.

Small pools, or lakes with perhaps one little fountain, are also good ways to make water a part of the outdoor environment. People associate water with stillness, with tranquility. On a college campus, providing a tranquil place away from the hustle and bustle is important.

Outdoor dining spaces, such as the one outside the senior lab in the landscape architecture department at the University of Florida, are also important to the environment. Because it's near the

landscape architecture department, students affectionately call the small 25-person outdoor dining space "Cafe L.A." Heavy planting of native vegetation combine with multi-level decks and colorful sun umbrellas to make this a pleasant place to relax.

The ambience of the campus also rests on order—from the paving of pathways to the landscape, to the trees and the architecture. An aerial view of a campus should show clearly that there's been a plan and an order to its growth. Creative planning and maintenance of pathways is one way to accomplish this.

At the University of Washington, for example, the entire area was raked over, an irrigation system was installed, bricked over and then seeded with grass. In the summertime, the whole area turns green, and in the winter the pathways breathe. As traffic patterns change, the university is not locked into that hard look associated with an unused sidewalk.

Because the United States is such a litigious society, architects and planners must be careful about making paved areas safe. This doesn't mean, however, that you must stick with plain old concrete which costs about five dollars a square foot to install. For a few cents more, patterns can be stamped into the concrete to add design interest.

This same concern with safety should influence installation of campus irrigation systems. Below-ground systems have become popular because they cost the same as above-ground systems, yet require much less maintenance.

Outdoor lighting is another area where safety should be paramount. Good lighting design doesn't cost any more than bad design, and it can simultaneously meet aesthetic and security needs. Outdoor lighting, which includes area lighting, architectural lighting and landscape lighting, should provide an overall enhancement to the exterior space.

Finally, let's not forget the students for whom campus spaces are designed. Landscape architecture students in particular have a lot to offer their universities, both in terms of labor and ideas. Many colleges and universities have schools of ornamental horticulture and botany as well as landscape architecture. These students are a resource that should be tapped.

Providing an ambience for excellence is a tall order. It's a challenge that's difficult to deliver, but it's one that's costly to be without. The people who live and work in our campuses deserve the finest environments possible, and architects, landscape designers, planners and physical plant managers must continue to work together to meet this important need.

"Outdoor environments are very important in terms of providing the proper ambience, especially on college campuses."

"On a college campus, providing a tranquil place away from the hustle and bustle is important."

Respecting and Managing a Campus Master Plan

Thomas R. Kepple, Jr.
Provost
Rhodes College

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"The heart of my topic today, respecting and managing a campus master plan, will draw on the experience of Rhodes College as an example of an institution that has successfully achieved this."

Following a general building boom in the 1960's and a building bust in the 1970's, colleges and universities are building again—this time with the planning and quality more characteristic of our efforts in the early 1900's than in the 1960's, which have been described as "built fast . . . and cheaply . . . to create new space for the hordes entering college."

Many of us have heard the unquotable comments of our alumni about those 1960's buildings. Rather than dwelling on embarrassments, let's look at the exciting change in attitude—not just about new buildings, but about our view of the entire campus, the master plan within which the individual building is placed.

This change in attitude was born of five basic concerns:

- **First, students most often choose a college based on its appearance.** Our financial well-being rests on tuition income. Those colleges that have not recognized that the appearance of a campus directly impacts income will suffer the consequences of declining enrollment.

In recognition of this, some schools have made dramatic improvements. Millsaps College in Jackson, Mississippi is a prime example of having transformed a dismal campus into an extremely attractive one by adding several buildings and proper landscaping based on a well conceived master plan. As a result, there has been a dramatic increase in enrollment.

- **Second, outstanding facilities also attract faculty.** As we enter the 1990's, attracting outstanding faculty will be a major problem. It will be less of a problem for those institutions with first-rate facilities.
- **Third, we now recognize that the long-term energy and maintenance costs of poorly-designed buildings far exceed the cost of doing it right the first time.**
- **Fourth, donors don't like to put their names on poorly constructed buildings on shabby campuses.**
- **Finally, it is corporate America that has led the way toward a new commitment to quality architecture.** For example, who would have believed back in 1960 that AT&T, the paragon of high technology, would build a headquarters with ornamentation?

Corporations have recognized something that we in higher education lost in the 1950's and 1960's—that a high quality physical plant and campus contribute to an image of stability, quality, history, improvement of the surrounding community, and pride.

The heart of my topic today, respecting and managing a campus master plan, will draw on the experience of Rhodes College as an example of an institution that has successfully achieved this. Although we have made changes to the original 1923 master plan for the College's new campus in Memphis, Tennessee, the basic design

for a collegiate gothic campus has remained intact for 65 years.

Our master plan was developed between 1921 and 1923 by Charles Klauder of Philadelphia, who designed collegiate gothic buildings at Yale, Princeton, Cornell, Wellesley and the University of Pittsburgh. Klauder was assisted by a former student named Hibbs, who was a Nashville architect.

The new Rhodes College campus was to reflect the wishes of its president, Dr. Charles Diehl, and follow an Oxford style of architecture as well as an English system of classroom instruction. When the campus opened in 1925, Diehl said some extraordinary things about what an ideal college campus should be.

"Here was the chance of a lifetime; a chance to set the standard of an institution for all time; a chance to go forth unhampered by past mistakes, architectural and other, and to launch an institution which was as nearly ideal for its purpose as painstaking investigation and careful thought and planning could make it. Realizing that the good is ever the enemy of the best, we did not seek merely the good, but the best. There was ever before us the idea of excellence. It was our purpose to launch here an institution that would endure for centuries, and that would command the respect and quicken the pride of succeeding generations.

"There is in this country much pseudo-Gothic architecture, a cheap imitation which may content the ignorant or the untrained, but which calls forth the contemptuous ire of the enlightened critic. This we propose to avoid. Genuineness is characteristic of the heart of this institution, and we wanted this note sounded everywhere, even in the construction of the physical plant. . . . It is to be genuine throughout, free from all substitutions and cheap, make-believe effects, for this college has a hatred of sham."

Why all this attention to architecture? A president of a 200-student college in 1920 was the chief business officer, the dean of admissions and the vice president of development. Like many of us, Dr. Diehl had lived on a campus that had been poorly designed and built. He knew about maintenance costs and the effect of the campus on recruiting students and attracting gifts. Diehl was keenly aware that he was the president of an unknown, struggling college. Adding a thousand years of history and following the architectural lead of the best institutions in the country couldn't hurt.

Diehl also added another enduring principle: "We would rather do a limited work thoroughly and well than to attempt a larger work which we could not do in accordance with our ideal," he said. His words were brought out again and

"It was our purpose to launch here an institution that would endure for centuries, and that would command the respect and quicken the pride of succeeding generations." — Rhodes College President Charles Diehl in 1925

again at critical times in the college's history. They saved Rhodes from abandoning its master plan as the cost of construction rose.

Of course, the 1923 master plan was not entirely a copy of the Oxford and Cambridge Colleges. For example, the dormitories followed the American style in that they had long hallways rather than an Oxford central stairwell townhouse design.

Nor was Rhodes College's church relationship overlooked. The master plan included a grand entrance off University Street that focused on a chapel. Ultimately, the plan was compromised and a library was located on the site instead.

Although there are very similar arrangements at Duke, Princeton, Cornell and Wellesley, none came as close to the Oxford quadrangles as this design. The college's first seven buildings—all of which, along with six others, are on the National Register of Historic Places—exactly followed the master plan.

During its expansion in the 1950's and 1960's, the College began to deviate from the 1923 plan. A new master plan emerged that followed the "American" campus style of detached buildings in a less tightly woven arrangement. The contrast between these plans can be clearly seen in groupings of the newer, detached campus buildings.

By the 1980's, when we developed a new campus plan, the College rediscovered the attachment theme and a new dorm, Hassell Hall, was built to be expanded both to the east and west. Several factors led to the development of a new plan.

- We already had a number of building projects, including some already funded, without specific locations based on any of our previous master plans.
- It was clear that the 100 acres of the midtown Memphis would have to be carefully conserved so that the College could expand enrollment and facilities if necessary.
- There was a concern that the campus must be more accessible to the growing number of visitors and special program participants.

Like the 1923 plan, our new plan was developed with strong input from the board of trustees, the president and professional planners. Following an extensive search, the Board selected The Architects Collaborative of Cambridge, Massachusetts, an outstanding firm with an international reputation for award-winning campus master plans.

The Architects Collaborative three-person team spent six months working with our campus group of 35 faculty members, students, administrators and board members. Together, they pored over many options before selecting a new plan. The preferred plan calls for:

- Developing an interior circulation road and moving parking from inside to outside locations.

- Surrounding the library with new academic facilities, thus moving the library to a more central location.
- Providing space for a 1,800-seat auditorium and other expansion on a new quadrangle.
- Moving playing and intramural fields north to provide adequate athletic facilities.

To date, we have implemented the following ideas from our new plan: improved buildings with plantings and sculpture, planted trees and moved parking away from buildings, added gateways and arches, and sited new buildings to create a closed quadrangle.

Surprisingly, we achieved consensus in the campus community in support of the master plan, which passed almost without discussion. Another major surprise was the resistance from our neighbors. Through a fluke in the zoning process, Rhodes College is zoned for single family housing, so we could not put up new buildings without the City Council's approval of a zoning change.

Our strategy was to complete the internal design of the master plan, present it to the neighbors in an open meeting for comment, then present the plan to our board for final action. In hindsight, this might have been a bad strategy because it took longer to get the campus rezoned than it did to develop the master plan.

Some suggestions for others developing new master plans:

- **Bring neighborhood leaders into the process early to let them know your plans and ask for their suggestions.** Rumors about our plans were a significant problem.
- **Prepare answers to these expected questions: Will the college be buying property in the neighborhood? How will major events be handled? Will there be enough on-campus parking? How will noise be handled? How will you screen the campus from the neighborhood? Specifically, what will be built and when?**

Creating a new master plan helped us develop both consensus and pride in the existing campus and the plans for its future. It provided potential donors a confident vision for the future of the college, and it focused our efforts in several ways—most importantly on University Street.

In closing, I want to paraphrase the words of my friend Dr. John Thelin at the College of William and Mary. At commencement ceremonies, Thelin points out, presidents often give the reminder that a college is "more than bricks and mortar." But perhaps, Thelin says, those of us who study the impact of colleges and universities on various constituencies ought not to take that reminder literally.

"Surprisingly, we achieved consensus in the campus community in support of the master plan, which passed almost without discussion."

To the contrary, we might heed the reminder that higher education *does* include "bricks and mortar" as the setting of higher education is played out in a changing, complex and unfinished script.

Comprehensive Planning for Unpredictable Changes: The University of Frankfurt

Manfred Hegger
Partner in the architecture
firm of Arbeitsgruppe
Nutzungsforschung
Kassel, Germany

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"The majority of the university's present buildings were constructed during the late 1940's and early 1950's—some were built with American donations immediately after World War II. . . . Only a few buildings were added in the 1960's and 1970's and by the late 1970's, construction had completely stopped."

The Johann Wolfgange Goethe University of Frankfurt, which carries the name of one of our greatest poets, is not at all as poetic as its name may pretend. The university is not an old, renowned or picturesque university. However, I prefer to base my presentation on this "ugly duckling" because it is typical of the university situation in Germany and some other European countries.

In West Germany, which has a population of 62 million, about 1.4 million citizens are enrolled in state universities and polytechnics—a figure that is six times greater than 25 years ago. Private universities now play a small role in the higher education system of West Germany. There are now more than 100 universities in the country, compared to only 50 in the 1950s, due to major growth during the 1960s.

The rapid growth of universities and the rise in student enrollment created a number of problems. Although the majority of newly-founded universities proved to be successful, those smaller ones in remote locations did not. Another problem is that the founding of new universities did not stop growth at the older institutions, which lacked funds for expansion and renewal. Public funds were allocated for multi-million dollar building programs at the new institutions, while the existing universities were neglected in the Federal Republic of Germany.

This is especially true of the University of Frankfurt, which is located in one of the major cities. With 650,000 inhabitants, its booming banking and stock exchange centers, chemical industry, major airport and many cultural opportunities, the city of Frankfurt continues to attract many students. Established in 1913, the university is not old—yet it offers a varied curricula with 21 departments ranging from medicine to computer science, from sports to sociology.

Its humanities program still benefits from the reputation of the so-called "*Frankfurter Schule*," a group of famous philosophers and sociologists located near the university. The university, which started at two locations with some existing buildings from private and semi-private science foundations, is now scattered over six locations across the city.

The majority of the university's present buildings were constructed during the late 1940's and early 1950's—some were built with American donations immediately after World War II. Many of the buildings were planned by Ferdinand Cramer, a well-known German architect of the modern school. Most of Cramer's buildings were, cost- and space-wise, built on a shoestring. Only a few buildings were added in the 1960's and 1970's and by the late 1970's, construction had completely stopped.

In addition to new construction, the university also took over or inherited some

buildings—some of them of dubious value. Particularly dubious is a 40-story tower block of the former College of Education, a row of former town houses, a former tram depot and the oldest union printer works in Germany.

Obviously, there was never anything like a master plan for the university. Rather, it developed in a sort of "muddling through" approach in which buildings were constructed as funds and sites became available, with little consideration given to academic requirements, city planning objectives or creating a quality educational environment.

Throughout its history, the university has consistently lacked order and identity in its environment. The University of Frankfurt never escaped its initial problems associated with lack of funds, lack of space and the lack of self-confidence exhibited by older city universities. The problem at this university was not to "preserve a quality environment for learning," but to begin creating one after nearly 75 years of haphazard development.

My firm was commissioned to conduct a survey of the university and prepare a master plan for its renewal. Presumably we were selected because we argued for tentative action and preservation of existing buildings whenever possible. Our job started with a comprehensive survey of the situation. The university had no planning department and only a small estate department. Minor building programs were handled by the university and, later, the state building department.

We started from scratch but a benefit was that we had the opportunity to become acquainted with the university and its people in detail and first hand. Presumably, this first-hand access saved us from risky interpretations of inaccurate or obsolete data.

Among our major conclusions:

- Based on enrollment forecasts for the year 2000, the university lacks about 50,000 square meters of space.
- University departments are dispersed over many buildings and locations. Some departments are located in as many as 20 different buildings in five locations.
- There is no order to the spatial pattern of the university. Departments and institutes seemed to be located at random, without respect to needs for cooperation, communication and identity.
- Many buildings were neglected and in poor repair. Worst of all was severe concrete damage which was starting to create structural problems in the post-war buildings.
- The university was under pressure from the city to clear buildings in adjacent housing areas—buildings it had acquired or rented in order to relieve some of the most pressing space needs.
- The university did not provide sufficient outdoor recreation areas. It lacked a

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central pedestrian spine connecting the building blocks, and traffic and parking considerations overrode those of a vital campus life.
- There was no "university line" on the city's subway system.
- The university had no clear image in the city. Symbols, logos and signs were weak, misleading or frequently changed. The University of Frankfurt lacked what in industry is called a "corporate image."
- As a result of these many shortcomings, qualified academic staff tended to leave the university for more attractive working environments.

In many respects, the university showed severe and accelerating signs of disruption and neglect. The state of the university was not in line with the prosperous image of the surrounding city. Its buildings lacked the glamour of the so-called "new Frankfurt," designed by world-famous architects.

On the basis of our survey, we developed a master plan for university development. The term "plan" may be misleading, because we do not believe in a fixed outline for the future. Instead, we view planning—especially long-term planning for large organizations—as an ongoing process holding many uncertainties. Long-term strategies may be affected by many factors that require changes to a plan.

To state just a few:
- How are funds allocated? Which sorts of future projects will be preferred by the government?
- Will unforeseeable changes in demand in educational and research activities influence program needs?
- Why not include the good ideas of academic, administrative and technical staff in plans?
- What is the long-term availability of the many buildings rented by the university?
- Why shouldn't we assess open-mindedly the likelihood of unexpected offers to purchase buildings and land adjacent to existing university sites?
- How can we manage delays in putting the plan into practice?

The university may wish to adopt changes advantageous to its development. It may also be forced to adapt to rapidly-changing situations. Either way, changes will have effects upon a given plan and each change will make the plan more obsolete. Therefore, the university should be prepared to cope with uncertainties such as the ones described. On the other hand, a clearly-defined set of overall objectives is needed—long-term guidelines that will be untouched by change.

In the case of the University of Frankfurt, these guidelines for the gradual renewal of the entire university have been carefully defined with university and government administrators. They include:
- Grouping disciplines.
- Creating an integrated network of memorable outdoor spaces.

"In many respects, the university showed severe and accelerating signs of disruption and neglect. The state of the university was not in line with the prosperous image of the surrounding city. Its buildings lacked the glamour of the so-called 'new Frankfurt,' designed by world-famous architects."

- Establishing a pedestrian character on campus.
- Accommodating new space needs by restoring/reusing existing buildings.
- Constructing new buildings in harmony with their surroundings.
- Developing spaces that encourage communication.

Many of the components of The Ohio State University Plan for Improving the Quality of the Campus Environment are similar to the characteristics of our plan for the University of Frankfurt. The order of action, the modes of transformation, the costing and other factors have been defined on this basis. In doing so, we are aware that changes are bound to happen so the plan is an ideal one that is designed for flexibility.

We have achieved this flexibility by using appropriate planning tools. The plan has been designed as a network of activity models. Any element or variable in the model may be changed without too much effort by using computer models. All the plan's paperwork, tables and figures may be easily altered and the results readily reviewed and evaluated.

The plan for the University of Frankfurt consists of the following elements:

1. **A calculation/definition of space demands to the year 2000 of all faculties, institutes and other university bodies.**

This calculation is based on a forecast of student numbers, taking into account a 40 percent reduction in birth rates in Germany between the late 1960's and the early 1980's. It is also based on attractivity estimates of all faculties for the future. A result of this exercise is a site plan showing existing and future locations for each faculty/organizational unit.

2. **A pattern of distribution defining the locations of all university facilities, naming location, site and space standards in existing or new buildings.**

The pattern represents a sort of faculty grouping—i.e., it aims not only at concentrating all of a faculty's facilities at one location or in a single building, it also tries to create spatial groups or "families" of faculties practicing or desiring strong cooperative links.

3. **A detailed description of building activities necessary to facilitate the changes as defined—both modernization, adaptation and new construction—up to the year 2000.**
4. **A chronological order of building activities up to the year 2000.**

This sequence takes into account such factors as urgency for action with regard to a facility, minimized removal needs and spatial aspects such as limiting inconvenience and minimizing disruption related to building activities. Removals are avoided whenever possible and, if removal is necessary, it is reduced to one move only.

"Many of the components of The Ohio State University Plan for Improving the Quality of the Campus Environment are similar to the characteristics of our plan for the University of Frankfurt."

5. **A cost estimate that takes into regard an even distribution of planning activities and capital investments over time.**

Total estimated cost of the building activities as proposed are approximately $300 million dollars.

6. **A sequence of removal of university facilities from rented accommodations, stating dates of completion of projects and clearance of buildings.**

A test designed to supplement this quantitative model was developed with architectural design drawings to check our paperwork and give a rough idea of how the campus ought to look. To name just a few:

- New buildings around the tram depot would make it a central covered space and a focus of informal activities.
- A university forum could open toward a major city street and street market.
- Pedestrian walkways could open up and improve hidden open spaces.
- Perimeter buildings could bring tower blocks down to a human scale and ease circulation problems inside high-rise accommodations.

In designing these plans, we were able to calibrate our model and check our first plan. It also helped to identify problems in different subject areas such as town planning, traffic, landscape design and organization, and to define objectives of the future planning exercises.

After a number of discussions, our federal *Wissenschaftsrat*—an independent, powerful advisory body of scientists that recommends whether or not university building projects should be funded—ratified these plans in 1986. Since then, we have held three architectural competitions to put these plans into action.

The competitions included one for construction of a new center for biochemical research; a general redevelopment plan for the university's central location; and a second stage competition for general redevelopment limited to two blocks of the university. At the same time, work has started on several remodeling projects: the facade of the Old Main Building is being restored, the Old Pharmacy Building is receiving a thorough repair, as is the old tram depot. These and other activities are independent of the ongoing competition and are being carried out by state building offices.

With respect to general planning at the University of Frankfurt, we have made these suggestions:

- **The university should reduce its number of locations if possible.**

Fewer locations would reduce friction and enhance communication among departments, and also facilitate greater freedom among faculties to reorganize occupancy patterns.

- **Faculties and other university bodies ought to be grouped so they can share certain facilities.**

- **Each facility ought to provide flexible space that can be expanded or contracted as needed.**
- **The university as a whole and each group of facilities should have a sort of "joker" in terms of space to allow for short-term space needs. Once this joker space is used, under-used space should be found elsewhere.**
- **We have also recommended flexible design for new buildings.**

In the old days, buildings became obsolete for technical reasons. Today, functional aging of buildings is determining the value of existing buildings. Highly specialized buildings are aging faster than standard ones.

We propose to avoid perfection—to try to build in a more simple way. In West Germany, cost limits for university buildings are high. Still, they never seem to work properly and universities still tend to over-install their buildings, to make them over-perfect. We call for much simpler solutions and, theoretically, much shorter life spans. The University of Frankfurt has agreed to review the use of space in new buildings every two years. This decision should help to overcome institutionalized inertia, a common characteristic of many administrations in our country.

Thirty years ago we began thinking about adaptable construction. We have since learned that considerations about adaptability cannot be limited to building systems, but must be carefully related to much broader issues. We need to consider natural, social and environmental factors, and we cannot overlook user goal systems. What is needed most, however, is the adaptability of our minds so that the challenge of creating adaptable buildings can be taken.

Campus Ecology: The College Environment, Learning, and Development

James H. Banning
Associate Professor
Department of Psychology
Colorado State University

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"The physical environment, both the natural and the built, contributes to student learning and development in two important ways. First, the actual features of the physical environment can impact complex behaviors, including the encouragement and discouragement of learning and development. Second, student involvement in the process of designing and redesigning the physical environment can promote student learning and development."

Campus ecology is the study of the transactional relationship among students and the campus environment. Important to the study of campus ecology are those systemic relationships among the inhabitants of the environment and various components of the environment. These components include all the physical, chemical, biological and social stimuli that impinge upon the students' sensory modalities (Wiche, 1973).

Ecological paradigms are often expressed through the formula, "Behavior of organism is the function of the organism interacting/transacting in the environment." In the field of human behavior, this is expressed as "B = f (PXE)" (Lewin, 1936). In the case of campus ecology, the organism of interest is the student and environment of interest is the college campus. (Banning. In press.)

Environmental taxonomies do exist to help us conceptualize the environment in general (Moos and Insel, 1974) and the campus environment in particular (Banning and McKinley, 1980). Categories within the taxonomies range from meteorological considerations to reinforcement contingency analysis. In keeping with the theme of this conference, I will address only the important role the physical environment plays in the campus ecology—specifically, its impact on student learning and development.

Highlighting the role of the physical environment does not diminish the importance of the social environment or the role played by intra- and interpersonal variables. However, the role of the physical environment in complex behavior is often neglected.

Can the physical environment contribute to student learning and development? If so, how? The physical environment, both the natural and the built, contributes to student learning and development in two important ways. First, the actual features of the physical environment can impact complex behaviors, including the encouragement and discouragement of learning and development. Second, student involvement in the process of designing and redesigning the physical environment can promote student learning and development.

The key to understanding how physical environment features impact student behavior is the concept that this environment produces non-verbal communications (Rapport, 1982). Buildings, signs, traffic patterns and the landscape all communicate non-verbal messages to campus residents. These messages not only give cues for specific behaviors, they also give clues to the important social and attitudinal factors.

Mehrabian (1971) found that the silent messages of non-verbal cues may be more potent than the spoken word. The non-verbal messages of the physical environment have similar potential. Drawing on the works of Rapoport (1982), Zeisel (1975, 1981), Bechtel and Zeisel (1987) and Steele

(1973), as well as my own experience, I offer the following conceptualization of ways to read the non-verbal communications of the campus physical environment:

1. By-products of use such as erosion, leftovers and missing traces.
2. Adaptation of use.
3. Displays of self.
4. Public messages, including official signs and graffiti.
5. Redundancy.
6. Informal vs. formal.
7. Functional use.
8. Behavioral setting.
9. Special group messages.
10. Message patterns.

(Slides were shown to illustrate each of these concepts.)

These types of non-verbal communication of the physical environment can impact students' sense of well-being, their feelings of belonging, their identity and their sense of being valued by the institution. But can the features of the physical environment send messages that help or hinder the conditions for learning and development?

This relationship becomes evident when the following question is asked: "What are the necessary conditions for learning and development, and can the physical environment play an important role in fostering these specific conditions?" To answer this question, I will draw on the work of Blocher (1978).

Blocher uses an ecological model to show the conditions necessary for learning and development. He states that learning environments have three subsystems: the opportunity subsystem, the support subsystem and the reward subsystem. Each of these subsystems contains conditions that assist students in their development. The opportunity subsystem must involve and challenge the student. The support subsystem must provide reasonable structure and support. Finally, the reward subsystem must give feedback and opportunity for integration and application.

In addition to the important role the physical environment plays in student learning and development through non-verbal communications, is the role students themselves can play in the process of designing the physical environment. Involving the user of the environment in its design is not new (Sommer, 1972), but such involvement in a campus setting provides all the necessary conditions for learning outlined in Blocher's model.

Students who are meaningfully involved in design or redesign efforts exhibit analytical behavior, they participate in leadership, learn negotiation skills, and also engage in significant written and oral communications.

Werhli (1968) made the following statement: "When enlightened as to the effects of the physical environment, he designs by intent; but when ignorant of these effects, he designs by default." Both understanding and intent are necessary to build quality campus environments for learning.

"Students who are meaningfully involved in design or redesign efforts exhibit analytical behavior, they participate in leadership, learn negotiation skills, and also engage in significant written and oral communications."

Growth and Development of the Campus

Paul V. Turner
Associate Professor
Architectural History
Stanford University

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"One of the questions I asked college administrators and planners was, 'Have master plans for your campus every been made?' One administrator replied, 'Several, by professionals at considerable expense, usually discarded.' It was one of the most interesting and revealing responses I received."

In researching my book, *Campus: An American Planning Tradition*, I found that people have often questioned the value of campus planning. For example, in 1910, the architectural critic Montgomery Schuyler made the following observation in an article he wrote on college and university planning: "The history of American collegiate architecture shows that the planner trying to set a point of departure for his successors often does so only in the sense that they depart from his work as speedily as possible."

Schuyler was talking about a particular type of master planning that was common earlier in the twentieth century. But even today one sometimes hears doubts expressed about planning, and in many cases these doubts can't just be dismissed out of hand. I'm reminded of a response to questionnaires I distributed for my research. One of the questions I asked college administrators and planners was, "Have master plans for your campus every been made?" One administrator replied, "Several, by professionals at considerable expense, usually discarded." It was one of the most interesting and revealing responses I received.

We have some rather basic and perhaps even troubling questions here. What is the value of campus planning? What kinds of planning are most likely to be beneficial? A question for me as an architectural historian is: Can history in any way contribute to the success of planning?

In reading the publication Ohio State's Office of Business and Administration prepared to report the proceedings of the 1986 symposium, I was especially interested in the principles used as guidelines for The Ohio State University Plan. Formulated by a group called The Ohio State University Physical Facilities Committee, the principles at first may seem so obvious or benign as to be beyond controversy. They are: 1) Providing a unified academic community; 2) developing a pedestrian campus; 3) enhancing the university's sense of heritage and tradition; and 4) supporting the learning process.

Personally, I feel these are good principles, in most cases, of campus planning. But they are not necessarily obvious or beyond debate. Let's consider in particular the first principle: Providing a unified academic environment. I learned in my studies of the American campus that this principle has been more important in some periods than in others. In some cases, in fact, it has been rejected by planners.

One period when the unifying principle was very strong was during the early twentieth century when the Beaux Arts system of planning played a major role in American college design, producing master plans for colleges and universities that had a powerful sweeping unity. Its

principles of monumental organization facilitated orderly planning on a grand scale.

Examples include the plans submitted by John Galen Howard and other architects in the Hearst family's competition for the Master Plan for the University of California-Berkeley around 1900. Another example of the Beaux Arts system can be found in the Master Plan developed by William Welles Bosworth for the Massachusetts Institute of Technology in 1912.

The principle of the unified campus was perpetuated by many modern planners in the 1930s and 1940s. One example of this is the well-known plan of Ludwig Mies van der Robe, developed about 1940, for the Illinois Institute of Technology. Van der Robe's plan was somewhat different from other Beaux Arts plans, however, in that it lacked as a focal point the great domed building around which everything revolves. The plan is still strongly unified by symmetry and axes and the other types of controlling principles that are similar to the earlier Beaux Arts tradition.

But at the same time, in the 1940s and 1950s, a very different concept of planning was developing within the framework of modernism. One of its earliest and most articulate proponents was Joseph Hudnut, who introduced modern architecture to the design school at Harvard. In 1947 Hudnut had an article on campus planning published in *Architectural Forum* in which he attacked the tradition of "unified master plans and grand compositions."

His article attacked the tradition represented not only by Bosworth's MIT plan but also by van der Robe's plan for the Illinois Institute of Technology. The article is not well known today, but it's a pivotal one in expressing a new kind of outlook.

Hudnut wrote: "Every attempt to bind universities to a pattern laid out in advance has failed and ought to have failed. We must set them free to develop their environment in whatever way may best suit their existing needs. The tasks to be performed in university buildings and the methods by which they are built constantly change. Their nature tomorrow cannot be predicted. Let's imagine the university as the city planners imagine the city, as a growing organism whose form lies partly in the past, partly in the future. Our university will never be completed. We can take nothing for granted."

It's a very compelling statement and it certainly contains some validity and a lot of common sense, especially when seen as part of a reaction against the excessive formalism of much of the campus planning of that period. But there are also some problems with Hudnut's philosophy, especially as the article becomes more specific. In another part of the article he writes, "Let no building depend for its character on its relation to another building, nor let any of

"The principle of the unified campus was perpetuated by many modern planners in the 1930s and 1940s.... in the 1940s and 1950s, a very different concept of planning was developing within the framework of modernism."

"This lack of unified planning began to happen when there was tremendous growth in higher education."

the open spaces be of such proportions that new construction built in to them will destroy these spaces."

Here, Hudnut comes very close to saying that anything goes and there's no need for any unified physical planning—in effect, he's rejecting the first principle embodied in The Ohio State University Plan. I don't think that's quite what Hudnut meant to say but in practice that was the effect his ideas and those of others with similar outlooks had on campus planning during the 1950s and 1960s.

This lack of unified planning began to happen when there was tremendous growth in higher education. Schools were naturally attracted to the philosophy that anything could be built on the campus as needed with no consideration of larger patterns or campus unity. Occasionally this was done with good intentions and an interesting result. Perhaps the best example of this was the planning at Yale University under the presidency of A. Whitney Griswold in the 1950s.

During those years, many of the best architects were hired by Yale or by Griswold himself, who was personally very interested in modern architecture. Many of the important architects of that period were his friends, and he hired them to design individual buildings at Yale with complete freedom from any constraints or guidelines about campus unity.

As a result, many fine and architecturally important buildings were erected at Yale during that period. They include Paul Rudolph's Art and Architecture building, Skidmore, Owings and Merrill's Beinecke Library, Kahn's Art Gallery, and striking modern structures by Eero Saarinen and other renowned architects.

When Griswold was asked if there was a common denominator in all this new construction, he answered frankly, "No common denominator, just quality. That's all I'm interested in." He said in another interview that if the result is a kind of chaos, it doesn't really matter because he was more interested in each building having quality.

Many of the new buildings at Yale were of very high quality, but this is not typical of campus planning. Most of the campuses that were expanding fast and furiously at this time in America were notable neither for their unity nor their quality.

The question of interest here is: What is the role or value of unity in campus planning? Is it something that's really just a kind of nuisance that's dispensable, as Hudnut, Griswold and others proclaimed? Consequently, is the first principle for the development of The Ohio State University an erroneous one?

Personally, I think not. I think unity is worth trying to achieve on the campus and I think Joseph Hudnut and Whitney Griswold, despite their good intentions, were

essentially wrong in their views of campus design. I believe that the urban analogy stressed by Hudnut was flawed because the campus is not the same as a city—even when it may look a lot like one. Even when a campus is large and has many of the physical characteristics of a city and its traffic, its density, its diversity of uses—it still, I think, is not the same as a city.

What are the differences? Mainly, I think, that the campus, unlike a city, is an institution that embodies values and purposes. It's hard to define exactly what these values are and how they differ, of course, from school to school and from period to period. They may range from rather explicit values, as in the case of a denominational college, to more general principles, such as the belief in the need of education in a democracy or the search for truth as a fundamental good through research. Nevertheless, values of some sort nearly always underlie a particular institution.

One of the things I've learned from my research about American campuses is that major changes form over time. At first, the changes may appear to be simply changes of style as one period succeeds another in the history of the campus. In fact, the changes are often reflections of different educational values or principles, so that the physical unity of a school is an expression of its character, ideally, and doesn't simply reflect the whims of changing styles.

Selected aspects of the history of the American campus illustrate this point. Because they formed the context for the early American campus, I must go back a little further to the English colleges as they developed in the late Medieval period. At Oxford and Cambridge, founded during this time, buildings were constructed to form enclosed quadrangles—usually over a period of time. Often the chapel was the first building, followed by the dormitory rooms and eventually producing an enclosed quad.

There were a number of reasons for this phenomenon. Some of them were practical and had to do with security and finding the optimal use for crowded sites. But there was more to it than that. The enclosed quadrangle was particularly appropriate for a closed community—which these colleges were. With a tradition partly in the monastic pattern, it's not surprising that many of the English quadrangles, such as the quadrangle of Lincoln College at Oxford, are like monastic cloisters.

The most remarkable thing about colonial American colleges is that they broke sharply with this pattern of the enclosed quadrangle and developed very different patterns of planning—patterns that were open to the world and normally composed of separate buildings set in the landscape. The three main halls at Harvard, for example, faced out on the Cambridge Common which was across

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the road. Only one, Massachusetts Hall, survives today.

Early engravings of Princeton University's Nassau Hall show a similar openness, with large open spaces around the building. Princeton is where the word "campus" was first used. Eventually it was used to describe the grounds of a university or college but at Princeton, the first recorded use in the 1770s is to describe an open space. Campus is simply the Latin word for "field" and it was the perfect expression for the openness of the American campus.

It has sometimes been assumed, even in histories of American architecture, that these colonial American colleges were simply incomplete versions of English quadrangles due to lack of resources—that they were intended to someday become enclosed quadrangles. My research into this period shows this isn't true. Instead, there was a conscious rejection of the English model by administrators and planners.

For example, when Harvard added Stoden Hall, Appleton Chapel and other buildings to its campus in the 1760s, they built them looking out onto the Cambridge Common. The English model was rejected partly for practical reasons—by placing the buildings far apart they were more protected from fire, for example. But it was also rejected because there was an ideological reaction against the monastic tradition. Instead, these early American colleges felt the institution had an obligation to look outward, to serve the community. Early campus architecture was an integral expression of the nature, the ideals and the values of these institutions.

The College of William and Mary, founded at the end of the seventeenth century, is another example of this rejection of the English model. The College's first structure, the Wren Building, was originally intended to be part of an enclosed quadrangle. This design was soon abandoned, however, and the College developed under a very different type of plan, one much more in the new American mold with separate buildings defining an open space. Besides opening out to the community, because it existed first, The College of William and Mary also provided a focal point for a plan of the town. Variations of this same phenomenon happened at Yale and other colonial colleges.

After the Revolution and in the early nineteeth century, there was a vast proliferation of sectarian and state colleges and universities throughout the country. Several types of new campus plans appeared reflecting the character of the new institutions. Often, they were much more ambitious in scope than any earlier campus plans; these new plans reflected the planners' optimism and vision for the future of the republic.

The most famous example of this vision is Thomas Jefferson's great design for the University of Virginia, the fin-

ished plan for which dates from 1817. The design reflects Jefferson's ideal of a new kind of American university that would draw together each scholarly discipline in a separate pavilion linked to student rooms and integrated around the open space of the great Lawn. Open at the end, unlike the English quadrangle model, the space is dominated by the library whose rotunda, based on the Roman Pantheon, reflects the classical values espoused by Jefferson.

During this period there was also a new fascination with nature and with the great promise of the American land. This notion was reflected in the fact that many of the new colleges were sited on hills and overlooked the landscape. Union College in upstate New York is a good example of this type of plan. Laid out at about the same time that Jefferson was working on the University of Virginia, Union College was designed by French architect Joseph Jacques Ramee. Although he was a foreigner and had no personal stake in the ideals of American education, Ramee sited the Union College on a hilltop overlooking the Mohawk Valley. The location was illustrative of the college president's notion that the college be a "new Zion" reflecting the promise of America.

Between the mid- and late-nineteenth century, a new type of educational institution appeared: land-grant colleges. Created by the United States Congress through the Morrill Act in 1862, these colleges resulted largely from a populist reaction against the vestiges of elitisim at the traditional, classical colleges. Agriculture, mechanical arts and manual trades were among the courses offered at these institutions, whose campuses had a character different from that of the traditional colleges. Generally, the campuses of the early land grant schools were more informal and park-like.

They are similar to the plans developed by Frederick Law Olmstead for parks of that period. Olmstead was also involved in the preliminary planning of a few of these land grant institutions. Either directly or indirectly, Olmstead had a tremendous impact on the early development of these campuses. He felt they should have a special rural or village-like character that would instill democratic values. According to Olmstead, the buildings should be small-scaled and domestic in character.

Many of these schools also erected large, monumental structures—often with tall towers—that usually came to be called "Old Main." Many Old Mains dating to the late nineteenth century still exist on land grant campuses. This type of grand, towered structure seems inconsistent with the ideals of the informal, domestically scaled campus advocated by Olmstead for the land grant schools. They reflect the feeling on one hand that the campuses should be modest and informal as a reaction against east coast elitism,

"At best, the unity of a campus is both visually attractive and an integral part of the character of the school. The problem, of course, is how to achieve this."

but on the other hand, the Old Mains made a statement of the schools' desire to look important and respectable. The physical form of these campuses often reflect conflicting values within the institution, thus giving a more complete expression of their character and history.

Around the turn of the twentieth century, another new type of educational institution was developed. Urban campuses, prototypes for modern universities with their professional schools and variety of departments, began to grow up in big cities. Illustrative of this new type of institution are Columbia University in New York City, laid out by McKim, Mead & White, in the late 1890s and the University of Minnesota, masterplanned by Cass Gilbert about 1910.

Once again, a new type of planning was used—one that drew on the French Beaux Arts system of organizing complex programs along axes and cross-axes with focal points at various places. Many of these universities seemed rather like cities in their scale and complexity, and some even called themselves "cities of learning."

In the twentieth century there have been many new types of institutions and new developments in education. Consequently, there have been many types of campus plans. They range from the revival of the English collegiate quadrangle early in the century at Princeton designed by Ralph Adams Cram and Charles Klauder, to the more recent high-density urban schools for commuter students structured around systems of circulation such as the student union at Cleveland State University which gives commuters a center for campus activity.

Clearly, campus plans are not—or should not be—simply arbitary creations imposed upon a school for reasons of style. At best, the unity of a campus is both visually attractive and an integral part of the character of the school. The problem, of course, is how to achieve this. Campus planning is a complex process in which simple rules aren't very useful, especially in the case of large institutions that are undergoing change. It's easy to appreciate the unified plan of the University of Virginia or the gothic revival quadrangles of Princeton and Yale. But what about the more typical American campus that has many parts—some old, some new, with no clear dominating pattern or tradition?

Trying to impose a grand unifying order on these campuses would be superficial and actually destructive of whatever character the campus does have. If, on the other hand, there's no unifying vision, the campus is likely to develop just as cities do and eventually will have no physical expression of the spirit of the place.

Successful planners have to deal sensitively with this dilemma by trying to achieve an understanding of the nature of the institution, its values and where it's headed.

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A careful review of its history can help planners clarify the character of a campus, and remind them of elements easily forgotten or overlooked that contribute to the unity of the university environment.

Milieu Management in College Residence Design and Operation

Charles Schroeder
Vice President for Student
Development
Saint Louis University

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"The notion of student/environment congruence is an important concept. What kind of fit or match is there between what students need and what is provided by the environment? How can we use information about people, spaces and functions to create conditions that provide this environmental congruence necessary for learning and development?"

I'm going to share with you some ways to look at campus residence halls in terms of their physical and social environments and the interaction between the two. I will look at the type of interaction that occurs among different kinds of students in different kinds of social climates and in different types of buildings.

What difference does it make if you have a residence hall, as I have, that's 17 stories high as opposed to a small seminary the university bought and converted to a residence hall? The social climates in these places are very different. To cut costs in building the high rise, for example, only two elevators were installed. Simply getting to an 8 a.m. class on time from the upper floors is a challenge, not to mention what happens when parents help their children move in each fall.

The notion of student/environment congruence is an important concept. What kind of fit or match is there between what students need and what is provided by the environment? How can we use information about people, spaces and functions to create conditions that provide this environmental congruence necessary for learning and development?

A concept that seems to unify many theories is advanced by Sanford. Known as the "challenge-response" personality theory, it is based on identifying which forces in the environment are particularly challenging and which are supportive. Too much challenge causes overstimulation while too little creates a boring environment. There needs to be a critical match between human needs and satisfaction of those needs in the environment—what Moos called an "optimally incongruent environment."

The high rise residence hall with 875 people is often described as a dense, unpredictable, overly-stimulating setting that can be very challenging to some people. This type of building occupied mainly by freshman males can be almost overwhelming.

There are different ways to view students' roles in residence halls. We can view it as a kind of parent/child interaction in the classic *in loco parentis* sense. But students need to be engaged and invested in their environment as constructivists. We have a fascinating experiment going on at St. Louis University in which a 50-year-old woman is living in a residence hall, much as Margaret Mead lived in Samoa.

She's trying to understand the emergence of a freshman culture, and each week she shares with us fascinating insights about the freshman experience and how they find meaning in those experiences. They don't view finding meaning the way we do. They don't talk about their development in terms of psycho-social tasks or cognitive development levels or person/environment congruence. But the information she's getting is excellent qualitatively and it's much

different from the kind of data we get from surveys.

All this ties into milieu management, although I'm not sure we can really manage a milieu. I think we can influence it and make an ecological impact through our policies and procedures, the way we design buildings and match roommates. Milieu management, or environmental management, is the attempt to deliberately design conditions that will promote and foster learning. This involves the systematic marshalling and coordinating of environmental resources to facilitate desired growth and development. The effective management of student environments requires a knowledge of student residents' needs, interaction patterns and aspirations.

Many students spend up to 70 percent of their time in a 10 foot by 12 foot cell with someone quite different from themselves. Obviously, the quality of the roommate relationship is very important. If there's congruence, if there's a good fit, then students can feel stable, learn and grow. If they don't get along, it causes many problems.

To match roommates at Saint Louis University we use an indicator called the Myers-Briggs Type Indicator (MBTI) based on Swiss psychologist Carl Jung's theory of psychological type. Briefly, Jung's theory states that "much apparent random variation in human behavior is actually quite orderly and consistent, being caused by certain basic differences in mental functioning."

THE MBTI is the most widely-used personality inventory in the world. It has been translated into seven languages and is used extensively in business management and by the Catholic Church in spiritual development exercises, as well as by many universities.

Scores obtained from the MBTI indicate whether a student is: (1) extroverted or introverted; (2) perceives the world in a factual, realistic way versus an intuitive, imaginative way; (3) reaches decisions in a logical orderly fashion or in a subjective way; (4) uses a judging attitude or an intuitive or sensing attitude in dealing with the external world. Although everyone uses all four of these functions in varying degrees, each individual tends to prefer one dominant function.

Based on these functions we come up with a score called a type score, that places people as one of 16 different types. We try to avoid putting polar opposites together. Instead, we assign roommates with complementary charactertistics because natural differences in personality preferences cannot be accommodated in tight residence spaces.

We also use a lot of personal data sheets on which students tell us about their personal habits—whether they are neat or sloppy, smokers or non-smokers, for example. Matching compatible students fosters friendship and stability in their lives, and a sense of community. In a true community,

it's relationships that govern conduct and not rules and regulations. To foster community in our residence halls, we look at ways to create floor units based on academic traits, personality orientations, special interests and other factors that draw students together. We also encourage groups to recuit their own members to strengthen the cohesion of the community.

Each year, we ask students in residence halls to write a composite personality description of their floors to see if they have come to grips with the nature of their group environment. A copy of the description is put into a publication called *Choices* that is sent to prospective students so they can make a more informed decision about where they want to live.

Here's an excerpt from a composite profile written by a 13th floor group of women students:

"The word that best describes our floor is 'fun.' Sometimes we may seem disorganized, but when we all want to do something we all pitch in and it gets done.

"There are lots of different types of girls on the floor, with different interests and activities that make us interesting. Most of us study and work in the early evenings and do our considerable socializing in the late evening hours when doors are open and popcorn is popping. We enjoy playing intramural sports and recently everyone got sweat pants with 13G appliqued on the bottom, which we all wore at the same time."

Now listen to the description residents wrote of another floor in the same building:

"Most of us returned to the floor this year and the new girls fit in perfectly. We're mostly physical therapy majors with a sense of who we are. We've got something in common and put a big emphasis on our classwork. We often study together because our schedules are similar. Our group is also athletic and we are on our way to winning the women's dorm league championship. We do a lot together and really pride ourselves on our involvement and support of one another."

We find, based on their learning styles and their Myers-Briggs type that certain types of students are attracted to certain majors. Not surprisingly, they also share other characteristics as well and consequently find they have much in common.

More often than not, students in homogeneous groups list as their friends others living on the same floor. We've also learned that as group size increases, opportunities for meaningful involvement often decline. The way students are assigned as roommates and floormates is very important in structuring social space so they can identify with those around them.

The most valued space on most floors is the private rooms. Since we have a limited number of private rooms, we give students the responsibility of deciding how to allocate them. Some of the conversations go on for hours as they discuss who gets this valued space which is awarded to students who contributed the most to the floor during the past year. We find this works better than a housing administrator holding a lottery for the rooms, a process that damages a floor's social stability.

What are some other ways to build community? One way is to provide floor funds so students can buy matching sweat shirts or use the money to purchase improved lighting or new carpeting. Another way is to find a way for students to take pride in where they live by giving their floor a strong identity.

One of the more fascinating projects I was involved in occurred years ago at Auburn University. We asked engineering students in one of the residence halls to contact the alumni office for the resumes of distinguished living Auburn alumni. After reviewing the resumes, students selected alumni whose achievements they admired and invited them to their floor during alumni weekend to see where their names had been permanently posted.

Included on the list were the chairman of the board of AT&T, the vice president of Eastern Airlines, an astronaut, a Rhodes Scholar and other distinguished engineers. Every one of these busy people came and, in many cases, relationships developed that lasted for many years. The Rhodes Scholar donated chemical engineering texts. The AT&T chairman donated computers. The astronaut is still sending checks earmarked for "his" floor. The Auburn project was successful because it gave students an ongoing sense of pride and ownership.

Students need to feel ownership and control of their primary space, a small dormitory room. They also need to be able to deal with the larger secondary space of their floor and other larger spaces for group interaction. If the architecture is such that, for example, built-in desks force students to sit face to face as they study, it limits this control.

If the floor is so noisy that students can't find a peaceful place for themselves, their control over their environments is limited. Finally, the large public spaces—usually located at the bottom of high rise buildings—are spaces over which students usually have no control. These are areas in which crimes and vandalism occur. They require external control and security to regulate them.

We've learned to help students control and feel ownership over their primary space. I've been in buildings where furniture was literally chained to the floor. Students said they felt like inmates, and no wonder! At St. Louis University, students are encouraged to paint and personalize their rooms. We

show them how to build lofts and hang curtains to section off space within the room so they can establish their own sense of territory. We've decreased damages by as much as 80 percent by giving students control of their personal space. Students do not invest a lot of time and energy in their rooms and then leave them after one semester. Retention rates and the degree of personalization go hand-in-hand.

Public space can also be personalized so that students find it appealing for social interaction. Successful public spaces are those in which students control the space by selling popcorn, managing table games, setting up fitness centers and other appealing activities. The profit from concessions, games and membership in the fitness center is used by students to improve the public space so that it gets better every year.

Environments simultaneously shape people and are shaped by people. Important to creating effective environment are the three i's: involvement, influence and investment. When students are involved in their environment, when they have control and can influence it, they become personally invested in it. Anything administrators can do to encourage this process will enhance students' learning and development.

"Public space can also be personalized so students find it appealing for social interaction."

Laboratory Flexibility: The Biomedical Center at Uppsala

Karl Johan Obrink
Department of Physiology
and Medical Biophysics
Uppsala University, Sweden

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"The Center, which officially opened in 1977, is one of the most flexible laboratory buildings ever constructed."

"The idea behind this mixing of faculties is to create a scientific milieu that inspires those who work here. Also important is a spirit of cooperation which means that the faculties share the Center's resources so that we do not have to buy duplicates of expensive equipment."

The Biomedical Center at Uppsala is a corporation between two universities—Uppsala University and the Swedish University of Agricultural Sciences. The Center, which officially opened in 1977, is one of the most flexible laboratory buildings ever constructed. Planning for the center began in the early 1960's and construction was done in four phases, with occupants moving in as each phase was completed. The last phase of construction was finished in 1982.

Nearly 1,400 scientists, teachers, and technical and administrative personnel are housed in the Center, which is home to the faculties of medicine, pharmacy, natural sciences, veterinary medicine and some members of the faculty of agriculture. In all, 32 departments are housed in the complex, which serves about 1,500 students. Most activities at the Biomedical Center focus on research. Researchers at the Center make efficiency their number one goal.

Different faculties at the Center are mixed so that, for example, microbiologists from all the different faculties have offices near one another. The idea behind this mixing of faculties is to create a scientific milieu that inspires those who work here. Also important is a spirit of cooperation which means that the faculties share the Center's resources so that we do not have to duplicate expensive equipment.

Although they share equipment and exchange ideas, the 32 departments at the Biomedical Center are autonomous. Each has its own Board and each has kept its own integrity. On the other hand, we try to make use of sharing within the large scale operation of the Center whenever feasible, so we have created a slogan that suits this viewpoint—"integrated integrity." Integrity is important so we don't have conflict between the different departments, but integration is equally important. Integration between departments is not decided from somebody above. Instead, it is decided from all the departments on the same level. If they don't want to be part of a shared effort, they have that option.

Because it must house and serve so many, the Biomedical Center is rather large. Americans may find it strange that the buildings are so low, but the construction rules in Uppsala forbid structures to be higher than the foot of the ancient castle of Uppsala, a focal point in the town. The size of the Center is 4,800 square meters working area, and 91,000 square meters total area. In square feet, this amounts to 10,460,000 square feet. There are about four miles of corridors in the Center.

The activity at the Biomedical Center is basic research, an area which has made enormous progress. It's absolutely impossible to foresee what's going to happen where basic research is concerned. For example, when we completed phase one of the Center in 1968, the Department of Natural Sciences Biochemistry had one room

with one scientist working on something called microbiology. Today, it's one of the largest and most efficiently-run departments in the Center. This shows how much and how quickly things can change, and why we need buildings that can meet these unanticipated changes.

To plan for such changes is a challenge. I'm sorry to say that we still find that most modern buildings are rigid and inflexible to the needs of those who work in them. When we were planning the Biomedical Center, there were two suggested solutions to making our buildings adaptable to their occupants. One solution was the general one, which meant that architects had to make the rooms suitable to anything and everything that could possibly be needed in each—electrical outlets and fume hooks everywhere, for example, to meet all conceivable needs. That, of course, would be extremely expensive and in the end still might not fulfill the purpose.

The flexible solution, on the other hand, is just the opposite. The first thing you do when you design a lab is to ask the user to make up a program telling you how much space he needs for his lab, his office and his equipment. Some time elapses between when he defines his needs and when the space is completed. You all perhaps know the conflict that arises then between the user and the architect because by this time, of course, the requirements have changed.

The flexible solution chosen in designing the Center is based on the principle that the experiment should not have to be adapted to the laboratory. Instead, the laboratory should adapt to the experiment. Each of the component buildings of the Center is identical and many of the component structures—walls as well as fixtures—can be moved by laboratory personnel to meet their changing needs. Another interesting design feature is that, for democratic reasons, there is no main entrance to this building. This way, no single department may claim that it lives at the main entrance—there are actually about 12 entrances to the building, and all have the same dignity.

We have been living with this flexible solution for 20 years now. Throughout the four phases of construction new building materials appeared, of course, and technology made other advancements in construction available. However, the basic concept of flexibility remained unchanged and is still workable today.
(Professor Obrink's presentation included an extensive slide show focusing on design techniques used in the planning and construction of the Biomedical Center.)

"I'm sorry to say that we still find that most modern buildings are rigid and inflexible to the needs of those who work in them."

Economics of Amenities: Quality of Life and University Town Futures

Robert McNulty
Partners for Livable Places

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"... you need to define the collaborative issue so broadly that no one group can define itself as the exclusive solution."

I'd like to begin by sharing some background on my firm, Partners for Livable Places, which is unique in that it was formed in 1976-77 as a partner with the National Endowment for the Arts. Partners was established under the direction of the late Nancy Hanks, formerly head of the NEA, who brought together representatives of government and professional associations interested in working on issues related to the political, economic and social side of why design and environment contribute to a climate for social and economic opportunity.

Nancy Hanks realized that issues of aesthetics rarely shape communities. Instead, it's the politics, economics and social forces influencing the aesthetic concerns that actually shape them. Her aim was to find a structure that could look at those factors so that the arts agencies and arts endowments could become involved in helping to use physical design as a resource for creating more handsome and aesthetically pleasing places in communities.

Today, Partners for Livable Places has grown into a working consortium of more than a thousand different organizations all working toward this same goal. By empowering community people to create alliances among the economic and social forces that can effect change, Partners is helping to make environments more architecturally and aesthetically pleasing.

We have as part of our governing body groups ranging from the National Wildlife Fund to the Trade Association of Parking Lot Developers. We believe they are all contributing to making places more livable. What they argue about is the priorities and fiscal allocations of who comes first in terms of contributing the elements necessary to making a place livable.

One principle we've learned from working with all these groups is that if you want to structure a collaborative effort, you have to include everybody. This approach puts everyone on the same side—the right side—and makes them all part of the solution instead of part of the problem.

Another thing we've learned is that to get these busy and important people to take time from their hectic schedules, you have to include a "fun factor" to draw them. Superb food and good wine are important. Serving them in an unusual setting is another good way to attract people.

The third principle we've recognized is that you need to define the collaborative issue so broadly that no one group can define itself as the exclusive solution. Many of the public-private partnerships of the past eight years have come about because budgets were cut by the federal government. No one collaborates if they're rich enough to reach their goal alone—if I don't need your money or influence, why

should I convince you of my ideas and get you to collaborate when I can accomplish it all by myself?

These principles were put into action with our first job, which occurred in 1980 at the height of the recession. At that time, the Rand Corporation for their client, The National League of Cities, released a report for the League on where jobs would be coming from for the future of the American community. The report, done by a resource economist named Roger Vaughn, said that the perceived attractiveness of a community was directly related to new jobs and investment opportunities—in short whether it would be an up-and-coming community.

This perceived attractiveness includes creating an image to outsiders entering the community from the interstate, the airport or by rail. Does the downtown have sparkle? Does the community have public art, attractive landscaping, restored historic buildings? These add to an initial impact on the outsider of "By gosh, this is an interesting place." And that reaction has a direct relationship to soliciting an investment.

Partners for Livable Places began working with Dr. Vaughn at the Rand Corporation to develop ways to translate this attractiveness or perceived attractiveness of a community into an economic development scheme that we could offer back to cities, counties and states as an investment strategy. This economics amenity program was carried out between 1980 and 1985 as Partners worked as a resource to a number of communities.

At about this same time, more interesting information related to economic development was released by David Birch at the Center for Regional Economics and MIT. Birch conducted a survey of where new jobs would come from in terms of company size. What he found was that by the year 2000, 82 percent of all new jobs will be coming from companies employing fewer than 50 people.

These companies, or "units of employment," basically are anchored by a venture capitalist—a footloose entrepreneur who is freed from raw material and transportation systems. The entrepreneur needs to be connected via computer networks and prefers to live in places that are attractive, have good schools and recreation opportunities, and provide some diversity of culture and population. Clearly the perceived attractiveness of a community is a major drawing card for attracting these entrepreneurs who will create a variety of service jobs and add to the community's vitality in many other ways.

Another study, this one conducted by the late Harvey Perlow, formerly Dean of the School of Architecture at UCLA, showed that these jobs of the future were not ones that traditional Chambers of Commerce and Economic Development Councils were trained to attract. The recommendation was the whole approach to economic

development, previously directed toward attracting industry, should be retooled to attract high tech and service sectors.

A corollary to the fact that communities need to be attractive places to interest this new breed of employer is that they also need to present their best face to attract tourists. Tourism is already the world's largest industry and it's number one, two or three in 47 of 50 U.S. states. A new form of tourism has arisen called cultural tourism, in which the community itself is the destination. This cultural tourism has taken over the largest share of the growing tourism market.

A survey last year by the U.S. Travel Data Service showed that the most popular destination for tourists was not national parks, beaches or major cities. Instead, the most popular choice of tourists was a visit to small towns and cities to partake of the food, culture, entertainment and recreational opportunities.

The most popular trips were taken by families on three-day weekends. Because of their archives and historians, universities and interested scholars are excellent resources for telling the full histories of their communities to tourists. Many universities also offer accommodations to travelers of all ages through youth and elder hostels.

Increasingly, universities are also educating a growing middle class from the Third World, many of whom will stay in the U.S. to feed the "entrepreneurial miracle" that's occurring here. Education, then, is not just a standard of providing leadership in our own country, it is also a major economic offering to the Third World. Each university is basically an economic unit involved in recruiting and training many of the entrepreneurs who will fuel the American dream in years to come.

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According to Dr. Perlow, a cultural model of communities will help quantify what's needed to attract economic development opportunities. Perlow's model of culture is a broad one. It includes all public and private academic institutions, the zoo, the library, the performing arts, the gospel choir. Viewed in this way, everyone in the community becomes a participant in the culture.

Before his death, Perlow worked with the UCLA Business School to do a model of its economic contributions to the Los Angeles economy—excluding the film industry—so that the model would be representative of other cities. He found that the Business School was the third largest economic unit in Los Angeles in terms of direct jobs and revenues from ancillary services such as taxis, restaurants and hotels.

Then Perlow looked back within city government and said, "All right. If this is that important, how do we plan an investment strategy for long-term yield, for maximum yield on this area of culture?" He found that the city

had no minister of cultural affairs, no investment strategy for cultural affairs. In fact, it was the least-managed yet one of the most important aspects of the city's economic future.

Perlow then got the politicians and business people and those in economic development to realize that their universities, their arts centers, their botanical gardens were "infrastructure hardware," and that the care given to these facilities was as imporant as the roads, bridges and sewers of the city. Further, he said it was the "software"—the people, the professors, the artists—who were the software system that needed equal management in terms of salaries, compensations, and investment and enrichment fo their contributions to the culture of the city.

I don't know of any cities in the U.S. or Canada where a university is in the lead for doing a cultural plan, but there are 68 cities in those countries all doing cultural plans tied to their economic futures. There are many different approach to cultural plans—some are dictatorial, others are participatory. Regardless of how it's developed, the university can function as a unique hub, a central secretariat, for a cultural plan.

Unfortunately, in many communities the university is the least seen, the least involved and the least respected member of the partnership for advancing the community. Whether it's looking at such issues as race relations, economic development or growth management, the university is hardly ever at the table of the leaders in trying to form a consortium that looks ahead and addresses civic issues. I make the case that a university's interests are identical to those of the community where it educates and employs citizens.

Universities are stake-holders in attracting investors to their communities. In many cases, I've found that universities are reticent about getting involved in economic development, claiming it's too controversial an area, that faculty members don't have release time or can't bill their work to a research grant.

Yet facilities managers and faculty members are major players in advancing how design and quality planning should become a community standard. The university's setting is a neutral one where a community's future can be plotted. If you think of the undertaking as a cultural plan, you may discover there are new resources to help pay your bills and support your role as more people understand the dimensions of universities' contributions to their communities.

Among the findings that emerged from Partners for Livable Places' five-year economics amenity program with communities in the U.S. and Canada was that most institutions—be they university building authorities or public library boards—were involved in the selection of architects

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"Noise levels are another consideration in determining whether a community is livable and attractive. A quiet city is an economic city."

who had contributed to someone's political fund or had other personal or political ties.

As an alternative, we and the National Endowment for the Arts advanced the idea that competitions for who would do these jobs would both result in fresh new plans and also the competition itself could be used as a marketing strategy for the community. This idea was implemented in Orange County, California, where we worked with the library board to hold a competition for the library in San Juan, Capistrano.

The Board hired the Dean of the Princeton University School of Architecture, Robert Graves, who brought the library in below cost and ahead of schedule. The library has become such a popular cultural spot that there's a waiting list for people who want to use it for weddings and other events. As a result of this success, all libraries in Orange County are mandated for international competitions.

This type of universal excitement results when the community participates. You can create a community consensus with a strategy that the appearance of the community is an important shared value and that everyone can contribute to it. For example, in Jacksonville, Florida, the Chamber of Commerce led a successful drive to ban billboards leading from the city's airport because citizens were convinced the ugly boards harmed this conservative city's ability to attract quality development.

Once people agree on the importance of this quality of public spaces, they have to decide who's responsible for animating them, for providing the performing arts, the trash pickup, and a public art policy. In many cases, this falls between the cracks and a special entity needs to be created to see these things get done. There's a symbiotic relationship between people using public places, reduction of crime and increased purchasing. That's why communities need a sense of activity and vitality in their public spaces, which should be attractive, well-lit, well-landscaped and well-cared for.

Noise levels are another consideration in determining whether a community is livable and attractive. A quiet city is an economic city. In fact, there's a direct relationship between high noise levels and low building rents. Obviously, a city with low air and water pollution is also more attractive. For example, in the last 10 years Denver—once one of the great destinations—has become one of the most polluted towns in America and it's paying the economic price for it now.

All these things—culture, design, animation, green spaces, clean air and water, tourism facilities—add up to the perceived attractiveness that makes communities economically viable and aesthetically pleasing places to live and work, and to start and grow new businesses.

Participatory Campus Planning: The Built Results of Alexander's Oregon Experiment

Jerry V. Finrow
Professor of Architecture
University of Oregon

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"The university is a cultural artifact of our time and age. As a physical artifact, the university embodies the highest environmental values of our particular culture. We will be judged on the basis of what we do to that environment."

Before describing the Oregon Experiment, I want to first talk very briefly about six factors that are important to the university environment in terms of learning and higher education. First, there are the functional needs of a university that satisfy learning and education. These are the ones we deal with every day—space allocation, equipment and facilities.

The second factor is access to facilities through transportation planning—especially parking—which in the modern American university drives almost everything else we do. Long-range planning projections also fall in this category.

Now we get into the things that are a bit more interesting in terms of the role of the university in creating an environment for learning, and that is the third factor—the physical environment. The environment we're creating and designing for thousands of people on campus is helping to establish values in those people.

Through this process we are teaching students and others who occupy campus environments about the quality of places in general and the campus in particular. Students are formulating environmental ideals while they are on a university campus. The quality and character of the environments we're creating give rise to environmental respect or disrespect, and the way we treat an environment will be the way students will also treat that environment.

A fourth factor is that the university should foster the democratic participation of all members of the community in decisions about the environment so they can understand the value of such activity. Within that context, the design and planning of the environment is a political experience that offers a lot of potential for learning. In terms of this fourth principle, it's important to recognize that the university is a dynamic, constantly changing institution. The people occupying the environment are also constantly changing.

Issues five and six are related to viewing the university as an environment for learning and have to do with important considerations about the university as a physical place within a culture. The first has to do with the fact that the university environment is a kind of illustration of the best place we can make. The university is a cultural artifact of our time and age. As a physical artifact, the university embodies the highest environmental values of our particular culture. We will be judged on the basis of what we do to that environment.

With that introduction, I want to talk about the Oregon Experiment and campus planning at the University of Oregon. When I speak about participatory planning, I'm talking about an activity that directly involves the users of the campus. This is not something that only happens at the University of Oregon through the Oregon experiment. I believe that participatory campus planning is engaged in by everyone in

this room—it is really impossible for a modern university to exist without some level of participatory planning.

The title of my presentation refers to "Alexander's Oregon Experiment." Christopher Alexander is an architect and architectural theorist who grew up in Great Britain. He's currently a professor of architecture at the University of California-Berkeley with a practice dealing with a broad range of design problems. The "Oregon Ex periment" is a particular process that operates within an exceedingly conventional circumstance of planning and design.

The University of Oregon is one of seven institutions in the state. Founded in 1876, it's the principal liberal arts institution in Oregon and has a long tradition of encouraging the participation of faculty, staff and students in decisions affecting the university. There have been four major planning periods at the University of Oregon:

- 1876-1910 - we think of this as the unplanned period, when all design and construction was probably carried out under the direction of the university president.
- 1914-1940 - this was called the Lawrence period because an architect named Ellis F. Lawrence was responsible for the majority of the historic center of the university built during this time.
- 1960-1975 - called the Lackey period after a campus planner of the same name, it ushered in a new era of construction and the emergence of many problems with the quality of campus architecture.
- 1975-present - the Oregon Experiment was introduced by Alexander. The Experiment was not designed to replace traditional campus planning methods but as an addition to these methods.

The concepts embodied in the Oregon Experiment are influenced by Christoper Alexander's experience as an undergraduate at Cambridge University in England. If you've ever been there, you know the wonderful qualities of that place and can see how it weighed heavily on Alexander's thinking.

Based on a more broadly theoretical work of Alexander, the Oregon Experiment is called a timeless way of building—a kind of idealized speculation about the potentials of the planning and design process. Alexander proposed that it is possible for people not trained as architects and planners to make a significant contribution. He also provided a compelling criticism of the nature of building and design in our culture that I feel is a very valid criticism.

Among his observations was that there is little systematic knowledge in the design professions and a rampant commercialism in the environment that we can see illustrated by the typical American city. Alexander also said that we rely too much

"The 'Oregon Experiment' is a particular process that operates within an exceedingly conventional circumstance of planning and design."

on the knowledge of individuals to design places. For example, we take a million square foot building and we give it to an architect and say "Go design this thing." We see what we have when he comes back and graces us with his presence.

Alexander's view is that design is too far removed from the people who actually use the places because there is no opportunity for individual users to share their needs and concerns. Lastly, he talks about the need for places to make a better fit between what they should be and what they need to be.

Alexander proposes a participatory process of design where everyone in the culture has access to design knowledge. In this way, it is possible to design places very directly from their accumulated knowledge. These ideas may seem very naive and stupid on first reading, but when you read them carefully and think about them there's a lot of wisdom in Alexander's timeless way of building.

The Oregon Experiment as a book is part of a three-volume set authored by Alexander that includes *The Timeless Way of Building, The Master Pattern List* and *The Oregon Experiment.* All three are published by Oxford University Press.

The Oregon Experiment was adopted as the official planning policy at the University of Oregon in 1975. It was never approved by the state system of higher education—they don't like it, so it's operating on our campus in spite of the state system. It's meant to be a model for community planning in general and not just campus planning.

Alexander proposed six principles to guide the future of campus planning: organic order, participation, piecemeal growth, patterns, diagnosis and coordination.

- The first principle, organic order, states that the order in a campus and the development of the campus will come out of the individual small actions of a large number of people working together.
- The second principle, participation, states that all campus users have an opportunity—but are not required—to participate in campus planning and design, and that the organization of the process should facilitate that kind of engagement and involvement.
- The third principle, piecemeal growth, essentially says that the budgeting for the university should facilitate a large number of small projects rather than a few large ones. Through these small projects, the whole of the environment gets transformed and improved rather than just one little piece of it getting developed.
- The fourth principle, patterns, states that the order of the community, both the physical order and the quality of the community in this design process, will emerge based on those communally adopted patterns that are statements

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of criteria about the nature of the environment.

- The fifth principle, diagnosis, is not operating very well on our campus. Essentially, a diagnostic plan takes a pattern statement and evaluates the degree to which the campus is satisfying that pattern statement. The closest thing the University of Oregon has to a fixed plan are diagnostic plans.
- The sixth principle, coordination, basically says anybody can propose a project, develop it and present it to the campus planning board.

Here's how a typical project is handled within this framework: After funding has been secured, a series of steps is implemented by the campus planning office.

- First, a user group is selected, regardless of whether it's a five thousand dollar project or a five million dollar one. The user groups are formed of people who have a direct stake in the project.
- Second, the user group then goes to work on the project program and the issues related to the project.
- Third, the user group selects the architect. This is an interesting phenomenon because on many campuses, the architect is selected by the university president.
- Fourth, the architect—along with the planning facilitator from the office of campus planning—selects an order or set of patterns that are criteria statements about environmental quality. For most large projects, there may be as many as a 100 or so of these patterns. Patterns are then reviewed and organized in order of the most global to the most specific.
- Fifth, design meeting protocols are established in which the patterns are grouped into chunks of eight to 12 so that architects and user groups can sit down together and make decisions about the patterns in a systematic fashion. Each project, of course, takes many meetings.

The first serious piece of architecture addressed through the Oregon Experiment was the addition to and remodeling of the School of Music. The second project consisted of additions to and remodeling of the School of Education.

The Oregon Institute of Marine Biology, a satellite campus on the Oregon coast, also followed this process. An old World War II army barracks, the Institute was falling down but it had a kind of ambience that the people who lived there wanted to recreate.

They developed a design for a complex of long, narrow open buildings surrounded by open spaces so light could enter from both sides. The process, which took a year before construction began, was fraught with difficulties and the architects didn't like working with it very much, but the complex won an AI honor award. It is a remarkably humane place to study marine biology.

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